



Trend Micro™ Email Security

Directory Synchronization Tool User's Guide

Stop advanced email threats and spam before they reach your network

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<http://docs.trendmicro.com/en-us/documentation/email-security>

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This documentation introduces the main features of the product and/or provides installation instructions for a production environment. Read through the documentation before installing or using the product.

Detailed information about how to use specific features within the product may be available at the Trend Micro Online Help Center and/or the Trend Micro Knowledge Base.

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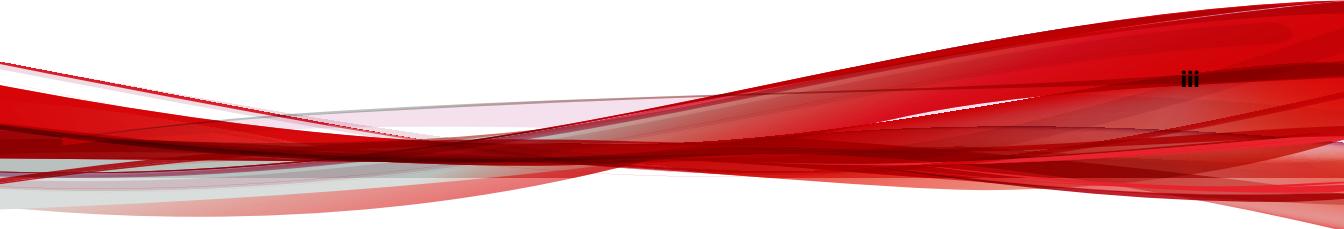
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Preface

Welcome to the Trend Micro Email Security Directory Synchronization Tool User's Guide. This guide introduces the Directory Synchronization Tool and explains how to use the Directory Synchronization Tool to synchronize groups, valid recipients and email aliases from Microsoft Active Directory, Open LDAP, IBM Domino and Microsoft Entra ID to the Trend Micro Email Security server.

This section includes the following topics:

- *Documentation on page iv*
- *Audience on page iv*
- *Document conventions on page v*

Documentation

The documentation set for Trend Micro Email Security includes the following:

TABLE 1. Product Documentation

| DOCUMENT | DESCRIPTION |
|---|--|
| Directory Synchronization Tool User's Guide | The Directory Synchronization Tool User's Guide is a PDF document that introduces the Trend Micro Email Security Directory Synchronization Tool and explains how to use the Directory Synchronization Tool to synchronize groups, valid recipients and email aliases from Microsoft Active Directory, Open LDAP, IBM Domino and Microsoft Entra ID to the Trend Micro Email Security server. |

Audience

The Trend Micro Email Security documentation is written for IT administrators and security analysts. The documentation assumes that the reader has an in-depth knowledge of networking and information security, including the following topics:

- Network topologies

- Directory management
- Policy management and enforcement

The documentation does not assume the reader has any knowledge of threat event correlation.

Document conventions

The documentation uses the following conventions:

TABLE 2. Document Conventions

| CONVENTION | DESCRIPTION |
|--|---|
| UPPER CASE | Acronyms, abbreviations, and names of certain commands and keys on the keyboard |
| Bold | Menus and menu commands, command buttons, tabs, and options |
| <i>Italics</i> | References to other documents |
| Monospace | Sample command lines, program code, web URLs, file names, and program output |
| Navigation > Path | The navigation path to reach a particular screen For example, File > Save means, click File and then click Save on the interface |
|  Note | Configuration notes |
|  Tip | Recommendations or suggestions |
|  Important | Information regarding required or default configuration settings and product limitations |

| CONVENTION | DESCRIPTION |
|--|--|
|  WARNING! | Critical actions and configuration options |

Chapter 1

Introduction

This chapter provides a brief introduction about Trend Micro Email Security and the Trend Micro Email Security Directory Synchronization Tool.

This chapter includes the following topics:

- *About Trend Micro Email Security on page 1-2*
- *About the directory synchronization tool on page 1-2*

About Trend Micro Email Security

Trend Micro Email Security is an enterprise-class solution that delivers continuously updated protection to stop phishing, ransomware, Business Email Compromise (BEC) scams, spam and other advanced email threats before they reach your network. It provides advanced protection for Microsoft Exchange Server, Microsoft 365, Google Gmail, and other cloud or on-premises email solutions.

Using Trend Micro Email Security, mail administrators set up policies to handle email messages based on the threats detected. For example, administrators can remove detected malware from incoming messages before they reach the corporate network or quarantine detected spam and other inappropriate messages.

About the directory synchronization tool

The Trend Micro Email Security Directory Synchronization Tool is a directory connector supporting Microsoft Active Directory, Open LDAP, IBM Domino and Microsoft Entra ID. Installed in your environment with access to your Trend Micro Email Security, the tool can synchronize the users' valid recipients, email aliases, and group members' valid recipients from the directory server to the Trend Micro Email Security server.

Synchronizing valid recipients enables the Trend Micro Email Security server to verify each email message by performing a valid recipient check. Synchronizing user groups enables you to define policies for user groups in Trend Micro Email Security. Synchronizing email aliases enables Trend Micro Email Security to identify and correlate different email addresses that belong to the same user, which facilitates the management of quarantined email messages, approved and blocked senders and integration of digest email messages for multiple end user email addresses.

Chapter 2

Install the directory synchronization tool

This chapter includes the following topics:

- *System requirements on page 2-2*
- *Download the directory synchronization tool installation program on page 2-2*
- *Install the directory synchronization tool on page 2-3*
- *Update the directory synchronization tool on page 2-4*

System requirements

Review the system requirements before installing the Directory Synchronization Tool.

TABLE 2-1. System Requirements for the Directory Synchronization Tool

| SPECIFICATION | DESCRIPTION |
|--------------------------|--|
| Operating system | Microsoft Windows Server 2016, 2019, 2022, or 2025 |
| Memory | Minimum 2 GB |
| Hard disk | Minimum 1 GB available for installation and processing data |
| Microsoft .NET Framework | <ul style="list-style-type: none">Recommended: 4.7 or aboveMinimum: 4.0 <p> Note To support Transport Layer Security (TLS) 1.2, install .NET Framework 4.6 or above. To support TLS 1.3, install .NET Framework 4.7 or above.</p> |
| Internet access | Internet access required |

Download the directory synchronization tool installation program

Procedure

1. Log on to the Trend Micro Email Security administrator console by navigating to the following URL:
 - United States
<https://ui.tmes.trendmicro.com>
 - Germany
<https://ui.tmes.trendmicro.eu/>

- Australia

<https://ui.tmes-anz.trendmicro.com/>

- Japan

<https://ui.tmems-jp.trendmicro.com>

- Singapore

<https://ui.tmes-sg.trendmicro.com>

- India

<https://ui.tmes-in.trendmicro.com>

- United Arab Emirates

<https://ui.tmes-uae.trendmicro.com>

- United Kingdom

<https://ui.tmes-uk.trendmicro.com>

- Canada

<https://ui.tmes-ca.trendmicro.com>

2. Go to **Administration > Directory Management**.
3. Under the **Downloads** section, click  to download the **Directory Synchronization Tool**.

Install the directory synchronization tool



Note

Before installing the Directory Synchronization Tool, make sure that the computer where you want to install the tool meets the system requirements mentioned under the section [System requirements on page 2-2](#).

**Note**

Trend Micro recommends installing this tool on a separate computer than where the source directory is installed.

Procedure

1. Run the **TMESDirectorySynchronizationTool.msi** application package to start the installation program.

The welcome screen appears.

2. Click **Next**.

The **Destination Folder** screen displays.

3. Select the location where you want to install the tool, and then click **Next**.

The **Ready to Install** screen displays.

4. Click **Install**.

The **Installing** screen displays.

**Note**

If the **User Account Control** is enabled on your operating system, a pop-up appears requiring you to provide the administrator's access. Click **Yes** on the **User Account Control** pop-up to allow the installation.

If there are legacy configuration files in the destination folder, those files will not be overwritten but will be directly used by the Directory Synchronization Tool after installation.

5. Click **Finish** on the screen that appears after the installation completes.

Update the directory synchronization tool

If your Directory Synchronization Tool is outdated or a new version is available in Trend Micro Email Security, you can update the Synchronization

Tool by uninstalling the current program and then installing the latest version.

Procedure

1. Download the latest version of the Directory Synchronization Tool from the Trend Micro Email Security server. See [Download the directory synchronization tool installation program on page 2-2](#) for the procedure.
2. Uninstall the current version of the Directory Synchronization Tool from your computer.

**Note**

Be aware that the existing configuration files will be backed up during uninstallation. When you install a new version of the Directory Synchronization Tool, your previous configurations will be restored.

3. Install the latest version of the Directory Synchronization Tool you downloaded in Step 1 of this procedure, into the same folder where you installed the previous version. See [Install the directory synchronization tool on page 2-3](#) for the procedure.
4. Start the Directory Synchronization Tool to review your settings.

Chapter 3

Use the directory synchronization tool

This chapter includes the following topics:

- *Configure the directory synchronization tool on page 3-2*
- *Test synchronization locally on page 3-10*
- *Synchronize groups, valid recipients and email aliases on page 3-12*
- *View synchronization history on page 3-13*
- *Configure the Trend Micro Email Security server on page 3-14*

Configure the directory synchronization tool

Configure service settings

You can configure your Trend Micro Email Security connection settings on the **Service Settings** tab.

Procedure

1. Start the **Directory Synchronization Tool** application.
2. On the **Service Settings** tab, configure the following:
 - Under the **Trend Micro Email Security Administrator Logon Account** section:
 - **Account Name:** Your administrator account name you use to log on to Trend Micro Email Security administrator console.
 - **Service Auth Key:** Your service authentication key for the Trend Micro Email Security server.



Note

You can find your service authentication key on the **API Access** tab of the **Service Integration** screen (**Administration** > **Service Integration**) on Trend Micro Email Security administrator console.

- Under the **Proxy Settings** section:
 - **Do not use a proxy:** If your network does not require a proxy, select this option to disable this setting.
 - **Automatically detect proxy settings:** Select this option to let the Directory Synchronization Tool automatically detect your network proxy settings.

- **Manually set the proxy (HTTP):** Select this option to manually set the proxy **Server** and **Port** settings for your proxy server. If required, type the proxy **User Name** and **Password**.

**Note**

The Directory Synchronization Tool currently supports only the HTTP proxy.

- **Synchronize every x hours:** Select this option and specify the duration in hours, if you want the Directory Synchronization Tool to automatically synchronize user groups, valid recipients and email aliases from the source directory to Trend Micro Email Security on a recurrent basis.

**Note**

This setting requires you to synchronize data manually for the first time. Later on, the Directory Synchronization Tool automatically synchronizes data according to your setting.

3. Click **Apply**.

Configure the source directory

Configure your synchronization source directory settings on the **Source Directory** tab.

**Note**

If your network includes multiple directory sources, configure all of these sources on the **Source Directory** tab, to enable the Directory Synchronization Tool to synchronize directory data from all of the sources.

Procedure

1. Start the **Directory Synchronization Tool** application.

2. On the **Source Directory** tab, complete synchronization source settings.

- a. Next to **Source Name**, specify a source directory name.
- b. From the **Source Type** drop-down list, select one of the following as the source directory type:
 - **Open LDAP**
 - **Microsoft Active Directory**
 - **Microsoft AD Global Catalog**
 - **Microsoft 365/Microsoft Entra ID**
 - **IBM Domino**

3. Complete required settings based on the source type you selected.

- If you select **Microsoft Active Directory**, **Microsoft AD Global Catalog**, **Open LDAP** or **IBM Domino**, configure the following:

Host Name: The host name or IP address of the directory server.

Port: The port number used by directory server.

Use SSL: If your directory requires an encrypted connection, select this option.

- **(Microsoft Active Directory or Microsoft AD Global Catalog)**

User Name and **Password:** The user name and password that Directory Synchronization Tool uses to access the source directory.

- **(Open LDAP or IBM Domino) LDAP Admin and Password:**

The administrator account name and password that Directory Synchronization Tool uses to access the LDAP server.

Base DN: The base distinguished name of the directory server.



Note

Skip this field if your source type is **Microsoft AD Global Catalog** or **IBM Domino**.

- If you select **Microsoft 365/Microsoft Entra ID**, configure the following:

Tenant Domain: The domain name of the Microsoft Entra ID directory, which is the sub-domain of the root domain "onmicrosoft.com".

Application ID: A unique ID required for a custom application to make calls.

Application Key: A unique key value required for a custom application to make calls.

For details about the Microsoft Entra ID settings, see [Create an Microsoft ENTRA ID application on page 3-7](#).

4. Click **Add** to add the source to **List of Source Directories to Sync** at the bottom of the screen.
5. Click the text **Click here to manage groups** under **Sync Groups** column, or the group count under **Group Count** column to manage groups that you want to synchronize to the Trend Micro Email Security server.

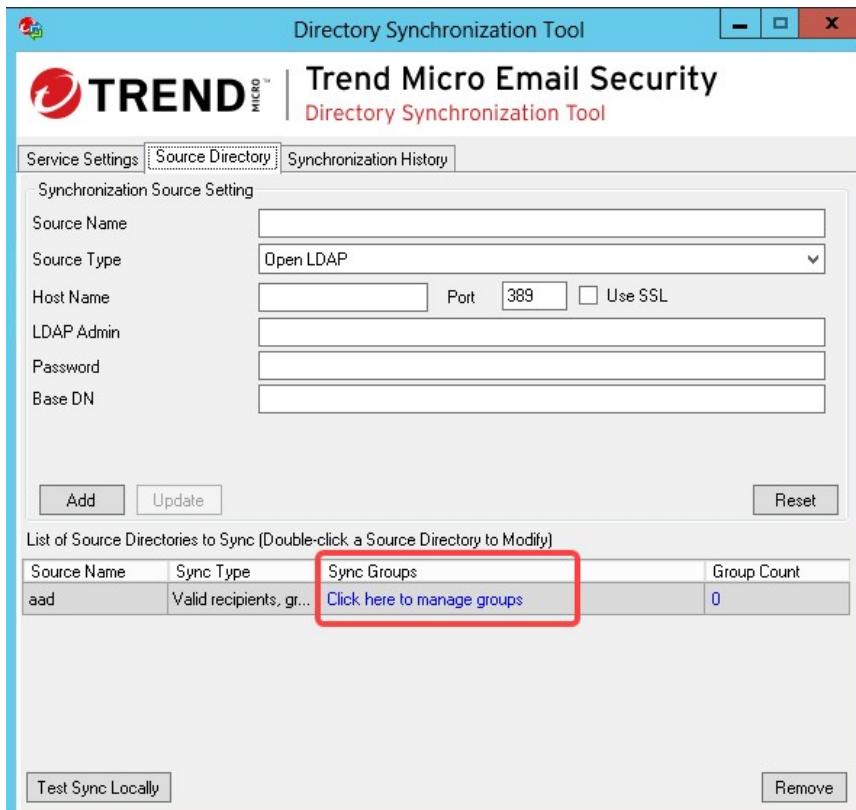


FIGURE 3-1. Source Directory tab

The **Manage Groups to Sync** window appears.

6. From the **Available Groups in Directory** list on the left side of the screen, select the groups that you want to synchronize, and then click the **>>** button to move the selected groups to the **Groups to Sync** list on the right. You can use the search box at the top of the list to find groups from the list.

To remove groups, that you do not want to synchronize, from the **Groups to Sync** list, select the groups that you want to remove and then click **<<** button to move the selected groups to the **Available Groups in Directory**

list. You can use the search box at the top of the list to find groups from the list.

**Note**

You can only select up to 50 groups from all the sources to synchronize.

7. Click **Apply**.

Create an Microsoft ENTRA ID application

Trend Micro Email Security accesses and synchronizes Microsoft Entra ID data using an application ID and a client secret. Create and register your application on the Microsoft Entra ID admin center to obtain the application ID and client secret.

Procedure

1. Register an application.
 - a. Log on to your Microsoft Entra ID admin center (<https://entra.microsoft.com/>) as an admin user.
 - b. Go to **Microsoft Entra ID > App registrations**, and click **New registration**.
 - c. Type a name for your application, for example, **TMES Microsoft Entra ID Sync**.
 - d. Under **Redirect URI (optional)**, type the following URL of the Trend Micro Email Security administrator console:
 - United States
<https://ui.tmes.trendmicro.com>
 - Germany
<https://ui.tmes.trendmicro.eu/>
 - Australia

<https://ui.tmes-anz.trendmicro.com/>

- Japan

<https://ui.tmems-jp.trendmicro.com>

- Singapore

<https://ui.tmes-sg.trendmicro.com>

- India

<https://ui.tmes-in.trendmicro.com>

- United Arab Emirates

<https://ui.tmes-uae.trendmicro.com>

- United Kingdom

<https://ui.tmes-uk.trendmicro.com>

- Canada

<https://ui.tmes-ca.trendmicro.com>

- Click **Register**.

A new application appears on the screen.

- Copy and save the application ID for future use.

2. Add a client secret for your application.

- Access the application you created in Step 1.

- In the left navigation, click **Certificates & secrets**, and click **New client secret** under **Client secrets**.

- Type a description for the client secret, select a 2-year option from the **Expires** drop-down list, and click **Add**.

A client secret generates in the **Client secrets** section. This value will not be visible after you leave this screen.

**Note**

Directory synchronization will fail if the client secret expires. If this occurs, generate a new client secret.

- d. Copy and save the client secret value for future use.
3. Obtain API permissions for your application.
 - a. Access the application you created in Step 1.
 - b. In the left navigation, click **API permissions** and click **Add a permission**.
 - c. Click **Microsoft Graph** on the **Microsoft APIs** tab page.
 - d. From application permissions, select the **Directory.Read.All** permission under **Directory**, and click **Add permissions**.
 - e. Click **Grant admin consent for Your tenant name**.
 - f. Click **Yes** in the dialog box that appears.

Remove the source directory

You can remove the source directory in the Directory Synchronization Tool from the **Source Directory** tab.

**Important**

Removing a directory source will also remove the policies applied to the groups from this source while synchronizing directories the next time.

Procedure

1. Start the **Directory Synchronization Tool** application.
2. Click the **Source Directory** tab.

3. Under the **List of Source Directories to Sync** section at the bottom of the screen, click the directory source you want to remove from the list, and then click **Remove** at the bottom right of the screen.

Update the source directory

If you have already configured a source directory in the Directory Synchronization Tool, you can update its information to match the current settings.

Procedure

1. Start the **Directory Synchronization Tool** application.
2. Click the **Source Directory** tab.
3. Under the **List of Source Directories to Sync** section at the bottom of the screen, double-click the directory source that you want to update.
All the fields under the **Synchronization Source Setting** section populate with the current source information.
4. Modify the information as required, and then click **Update** to update and save the source information.

Next steps

There are some advanced settings in the Directory Synchronization Tool. For details, see the following topics in [Advanced settings on page B-1](#):

- [Customize search filters on page B-2](#)
- [Specify a primary email alias on page B-6](#)

Test synchronization locally

The Directory Synchronization Tool enables you to test the synchronization on the local computer before synchronizing with the Trend Micro Email Security server.



Procedure

1. Start the **Directory Synchronization Tool** application.
2. Click the **Source Directory** tab.
3. Configure at least one source directory for the Directory Synchronization Tool to synchronize from. See *Configure the source directory on page 3-3* for the procedure.
4. Click **Test Sync Locally**, and select a folder on your local computer where you want to save the directory data.
5. The synchronization starts and creates the text (txt) files that contain groups, valid recipients and/or email aliases, at your selected location.
6. The synchronization starts and creates one or all of the following text (txt) files after it completes:
 - **Valid_recipients_yyyymmdd-hhmmss.txt**: This file includes the email addresses that are included in the source directory, and belong to the email domains that are registered with Trend Micro Email Security.
 - **Groups_yyyymmdd-hhmmss.txt**: This file provides the association of each email address with the groups in the source directory, and includes the following information:
 - The number of email addresses that are included in each group.
 - The group names that include a certain email address.
 - **email_aliases_yyyymmdd-hhmmss.txt**: This file includes email addresses and their relationship with email aliases.

**Note**

The Directory Synchronization Tool will only create these files if the related synchronization type is selected, and the directory sources contain the related data.

Synchronize groups, valid recipients and email aliases

The Directory Synchronization Tool synchronizes groups, valid recipients and email aliases from the source directory to the Trend Micro Email Security server.

Trend Micro recommends testing the synchronization locally before synchronizing the groups, valid recipients and email aliases from the source directory to the Trend Micro Email Security server. See *Test synchronization locally on page 3-10* for the procedure.

**Important**

- To synchronize groups, valid recipients and email aliases successfully, make sure the domains of these targets have been registered with and **verified** on Trend Micro Email Security. You can find your domain status on the **Domains** screen on the Trend Micro Email Security administrator console.
- You can only use one Directory Synchronization Tool application to synchronize data. If you use the Directory Synchronization Tool application installed on another location, the data synchronized from the last tool will be overwritten.

Procedure

1. Start the **Directory Synchronization Tool** application.
2. Configure the Trend Micro Email Security service settings. See *Configure service settings on page 3-2* for the procedure.

3. Configure at least one source directory for the Directory Synchronization Tool to synchronize from. See [Configure the source directory on page 3-3](#) for the procedure.
4. On the **Service Settings** tab, click **Synchronize Now**.

The synchronization starts, and the status displays on the **Synchronization History** tab.

Trend Micro Email Security collects the following types of data during the synchronization:

- Display names
- Email addresses
- Group email addresses
- Group and member relationships
- Email aliases

View synchronization history

The Directory Synchronization Tool keeps the synchronization history and displays the last seven (7) days of history on the **Synchronization History** tab.

Procedure

1. Start the **Directory Synchronization Tool** application.
2. Click the **Synchronization History** tab to view the history.

The logs include the following statuses:

- Synchronization started
- Synchronizing data...
- Synchronization successful

- Synchronization failed

Configure the Trend Micro Email Security server

After synchronizing groups, valid recipients and email aliases from the source directory to the Trend Micro Email Security server, perform the following:

- Configure policies on the Trend Micro Email Security server for the newly imported groups.
See “Configuring Policies” in the Trend Micro Email Security Online Help for details.
- Enable Trend Micro Email Security to perform the valid recipient check on the **Directory Management** screen (**Administration** > **Directory Management**).
See “About Directory Management” in the Trend Micro Email Security Online Help for details.
- Configure the primary email alias to receive digest email messages. As a result, digest email messages will not be delivered to other associated email aliases.

Appendix A

Troubleshoot the directory synchronization tool

This appendix includes the following topics:

- *Diagnostic logs in the directory synchronization tool on page A-2*
- *Troubleshoot the directory synchronization tool on page A-2*

Diagnostic logs in the directory synchronization tool

In case you encounter any problem in using the Trend Micro Email Security Directory Synchronization Tool, you can collect diagnostic logs and send them to for analysis to provide any solution.

The diagnostic log files are located at the following directory:

```
...\\Trend Micro\\Trend Micro Email Security Directory Sync  
Client\\logs\\
```

The Directory Synchronization Tool creates the following three types of logs:

- **dsacomfig.log:** Contains the UI configuration log details.
- **dsaservice.log:** Contains synchronization tool service log details.
- **dsamonitor.log:** Contains monitor log details.

Troubleshoot the directory synchronization tool

If the Trend Micro Email Security Directory Synchronization Tool is unable to synchronize groups, valid recipients and email aliases from the source directory to the Trend Micro Email Security server, go through the following steps to troubleshoot the problem:

Procedure

1. Navigate to the **Synchronization History** tab to view the reason mentioned in the **Details** column for the latest unsuccessful attempt.
2. Check the connection with the Trend Micro Email Security server:
 - Go to the **Service Settings** tab, and click **Apply**.

The Directory Synchronization Tool attempts to connect to the Trend Micro Email Security server, and verifies your account name and service authentication key. This step also verifies if directory synchronization is enabled on the Trend Micro Email Security server to allow the Directory Synchronization Tool to synchronize data to the Trend Micro Email Security server.

3. If the Directory Synchronization Tool is outdated, or the new version of the tool is available on the Trend Micro Email Security server, download and install the latest version.
4. If the Directory Synchronization Tool uploads the synchronization result to the Trend Micro Email Security server, but the Trend Micro Email Security server still does not update the directory data, then wait for some time, and try again.
5. If the problem persists, contact Trend Micro Technical Support for help. Before contacting Trend Micro Technical Support, make sure that you have the diagnostic logs that you can send to the Technical Support representative, if required. See *Diagnostic logs in the directory synchronization tool on page A-2* for the details on diagnostic logs.

Appendix B

Advanced settings

This appendix includes the following topics:

- *Customize search filters on page B-2*
- *Specify a primary email alias on page B-6*

Customize search filters

Procedure

1. Go to the directory where the Directory Synchronization Tool is installed.
2. Open the `clientconf.xml` configuration file.
3. Customize search filters based on your requirements.

For Microsoft Entra ID, use the `$filter` parameter provided by Microsoft Graph to define search filters. For other source types, use LDAP syntax filters to define LDAP search filters.



Note

For valid recipient filters, it is recommended that you disable **Recipient Filter** on the administrator console and verify customized filters to avoid unexpected email loss for valid recipients. After verification, enable **Recipient Filter** for the customized filters to take effect.

To disable or enable **Recipient Filter**, go to **Inbound Protection > Connection Filtering > Recipient Filter** on the administrator console.

| SOURCE TYPE | PROCEDURE |
|---|---|
| Microsoft Active Directory and Microsoft AD Global Catalog | Within the <code><default></code> section, add customized filters as follows: <ul style="list-style-type: none">• To create a filter for valid recipients, specify a value for <code><customizedFilter></code> in the <code><validRecipient></code> tag.• To create a filter for group members, specify a value for <code><customizedFilter></code> in the <code><members></code> tag. |

| Source type | Procedure |
|---|---|
| | <ul style="list-style-type: none"> To create a filter for email aliases, specify a value for <code><customizedFilter></code> in the <code><emailAliases></code> tag. |
| Open LDAP | <p>Within the <code><openLDAP></code> section, add customized filters as follows:</p> <ul style="list-style-type: none"> To create a filter for valid recipients, specify a value for <code><customizedFilter></code> in the <code><validRecipient></code> tag. To create a filter for group members, specify a value for <code><customizedFilter></code> in the <code><members></code> tag. To create a filter for email aliases, specify a value for <code><customizedFilter></code> in the <code><emailAliases></code> tag. |
| IBM Domino | <p>Within the <code><dominoLDAP></code> section, add customized filters as follows:</p> <ul style="list-style-type: none"> To create a filter for valid recipients, specify a value for <code><customizedFilter></code> in the <code><validRecipient></code> tag. To create a filter for group members, specify a value for <code><customizedFilter></code> in the <code><members></code> tag. To create a filter for email aliases, specify a value for <code><customizedFilter></code> in the <code><emailAliases></code> tag. |
| Microsoft 365/Microsoft Entra ID | <p>Within the <code><AAD></code> section, add customized filters as follows:</p> |

| Source Type | Procedure |
|-------------|--|
| | <ul style="list-style-type: none"> • To create a filter for valid recipients, specify a value for <rcptCustomizedFilter>. • To create a filter for email aliases, specify a value for <aliasCustomizedFilter>. |



Note

Note that some special characters need to be replaced with escape characters in your syntax.

- Use "&#" instead of "&".
- Use "<" instead of "<".
- Use ">" instead of ">".

If you are using **Microsoft Active Directory** or **Microsoft AD Global Catalog**:

- To filter out disabled users from valid recipients, use the following syntax:

```
<validRecipient>
<objectClass></objectClass>
<customizedFilter>!(userAccountControl=514)</customizedFilter>
<emailAttr>mail</emailAttr>
<emailAttr>proxyAddresses</emailAttr>
</validRecipient>
```

- To filter out disabled users that belong to a specific domain from valid recipients, use the following syntax:

```
<validRecipient>
<objectClass></objectClass>
<customizedFilter>&amp;(!userAccountControl=514))(proxyAddresses=+@example.com)</customizedFilter>
<emailAttr>mail</emailAttr>
<emailAttr>proxyAddresses</emailAttr>
</validRecipient>
```

If you are using **Microsoft Entra ID**:

- To filter out disabled users from valid recipients, use the following syntax:

```
<AAD>
<rcptObjectClass>users,groups</rcptObjectClass>
<rcptCustomizedFilter>accountEnabled eq true</rcptCustomizedFilter>
<emailAttr>mail,proxyAddresses</emailAttr>
<primaryEmailAttr>mail</primaryEmailAttr>
<aliasObjectClass>users,groups</aliasObjectClass>
<aliasCustomizedFilters></aliasCustomizedFilter>
<aliasIdentifier>id</aliasIdentifier>
<groupDisplayNamesAttr>displayName</groupDisplayNamesAttr>
<membersObjectClass>users,groups</membersObjectClass>
<membersDisplayNameAttr>displayName</membersDisplayNameAttr>
<membersFirstNameAttr>givenName</membersFirstNameAttr>
<membersMiddleNameAttr></membersMiddleNameAttr>
<membersLastNameAttr>surname</membersLastNameAttr>
<membersTitleAttr>jobTitle</membersTitleAttr>
</AAD>
```

- To filter out disabled users whose email addresses start with "test" from valid recipients, use the following syntax:

```
<AAD>
<rcptObjectClass>users,groups</rcptObjectClass>
<rcptCustomizedFilter>accountEnabled eq true and startswith(mail, 'test')</rcptCustomizedFilter>
<emailAttr>mail,proxyAddresses</emailAttr>
<primaryEmailAttr>mail</primaryEmailAttr>
<aliasObjectClass>users,groups</aliasObjectClass>
<aliasCustomizedFilters></aliasCustomizedFilter>
<aliasIdentifier>id</aliasIdentifier>
<groupDisplayNamesAttr>displayName</groupDisplayNamesAttr>
<membersObjectClass>users,groups</membersObjectClass>
<membersDisplayNameAttr>displayName</membersDisplayNameAttr>
<membersFirstNameAttr>givenName</membersFirstNameAttr>
<membersMiddleNameAttr></membersMiddleNameAttr>
<membersLastNameAttr>surname</membersLastNameAttr>
<membersTitleAttr>jobTitle</membersTitleAttr>
</AAD>
```

- To filter out users whose email addresses start with "test_user" and groups whose email addresses start with "test_group" from valid recipients, use the following syntax:



Note

If you create one recipient filter with **<rcptCustomizedFilter>**, this filter is applicable only to the first object specified in the **<rcptObjectClass>** tag. You can create multiple recipient filters following the object order in the **<rcptObjectClass>** tag.

The situation is the same with **<aliasCustomizedFilter>**.

```
<AAD>
<rcptObjectClass>users,groups</rcptObjectClass>
<rcptCustomizedFilter>startswith(mail, 'test_user')</rcptCustomizedFilter>
<rcptCustomizedFilter>startswith(mail, 'test_group')</rcptCustomizedFilter>
<emailAttr>mail,proxyAddresses</emailAttr>
<primaryEmailAttr>mail</primaryEmailAttr>
<aliasObjectClass>users,groups</aliasObjectClass>
<aliasCustomizedFilter></aliasCustomizedFilter>
<aliasIdentifier>id</aliasIdentifier>
<groupsDisplayNameAttr>displayName</groupsDisplayNameAttr>
<membersObjectClass>users,groups</membersObjectClass>
<membersDisplayNameAttr>displayName</membersDisplayNameAttr>
<membersFirstNameAttr>givenName</membersFirstNameAttr>
<membersMiddleNameAttr></membersMiddleNameAttr>
<membersLastNameAttr>surname</membersLastNameAttr>
<membersTitleAttr>jobTitle</membersTitleAttr>
</AAD>
```

4. Save your changes and exit.

Specify a primary email alias

Procedure

1. Go to the directory where the Directory Synchronization Tool is installed.
2. Open the `clientconf.xml` configuration file.
3. Set the `<enableSetPrimaryEmail>` tag to `true` to enable the primary email alias setting.
4. Edit the value of `<primaryEmailAttr>` in the `<emailAliases>` tag.

By default, the `<primaryEmailAttr>` tag is set to `mail` for each source type, which means the `mail` attribute will be retrieved from the directory server and used as the primary email alias. You can change the attribute if necessary.

5. Save the changes and exit.

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